Keysight NS1-Class Expert ATE Power Supplies

DP5800 Series DC Power Supplies

Introduction

Introducing the Keysight DP5800 Series of midrange, DC power supplies. These single-output, programmable power supplies are available in 2U size, with power output ranging from 10.2 kW to 12 kW. The DP5800 Series is equipped with system-ready features, including multiple I/O interfaces, built-in voltage and current measurements, and output voltage (10 V to 1500 V) and current (24 A to 1020 A), accelerating the testing of your power products, whether in the lab or on the production floor.



KEYSIGHT

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Introduction

The DP5800 Series DC power supplies are designed with system-ready features to simplify and accelerate test system integration. Standard interfaces, including LAN, USB, and GPIB, enable seamless connectivity in automated test environments. These 2U power supplies maximize rack space efficiency while supporting flexible system scaling. Multiple units can be connected in parallel (up to 16 units) to increase output current.

The DP5800 Series enables you to do the following:

- Built-in voltage and current measurements.
- Protect from overvoltage and overcurrent.
- Provide voltage options of 10 V, 32 V, 80 V, 300 V, 500 V, 800 V, and 1500 V, with current up to 1020 A for broad application coverage.
- Maximize rack efficiency with industry-leading 2U form factors.
- Save valuable rack space with stackable parallel operations of up to 16 units.
- Accelerate battery and power electronics testing with a built-in waveform generation function.
- Connect easily through LAN (LXI Class C compliant), USB, CAN, and optional GPIB and RS-232 interfaces.
- Gain deeper insights with Keysight PathWave Advanced Power Suite, integrated for power analysis applications.

DP5800 Series models:

- DP5810A – 10.2 kW, 10 V, 1020 A
- DP5811A – 12 kW, 32 V, 480 A
- DP5812A – 12 kW, 80 V, 240 A
- DP5813A – 12 kW, 300 V, 120 A
- DP5814A – 12 kW, 500 V, 72 A
- DP5815A – 12 kW, 800 V, 48 A
- DP5916A – 12 kW, 1500 V, 24 A

Autoranging Output Does the Job of Multiple Power Supplies

The DP5800 power supply features an autoranging output that expands the power curve, providing more voltage and current combinations from a single unit. Unlike power supplies with rectangular output characteristics, which deliver full power at only one voltage-current point, the DP5800 adapts across a wide range. It is like having many rectangular power supplies in one.

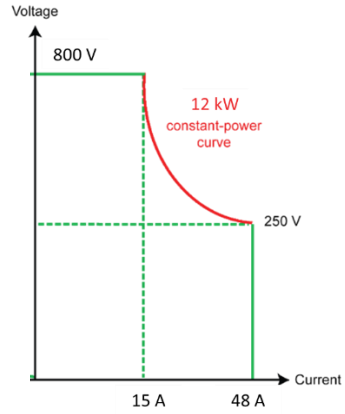


Figure 1. Autoranging output characteristic of the 12 kW DP5816A

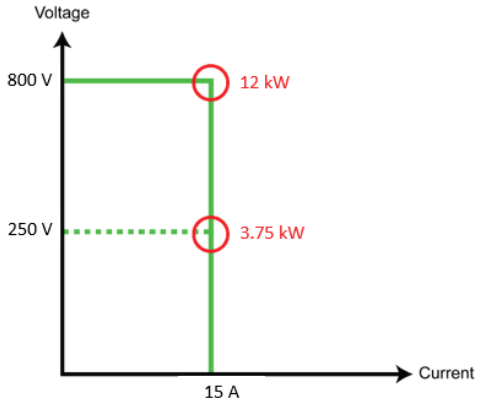


Figure 2. Rectangular output characteristic of a conventional 12 kW supply

Emulate a High-Power Battery from the Front Panel

With its battery emulation feature, the DP5800 Series enables you to test your devices under realistic power conditions. Emulating the battery is essential when characterizing battery operating life and detecting early product failures. The DP5800's design and variable output impedance make it easy for users to set voltage, capacity, internal resistance, and State of Charge (SOC) to define battery characteristics quickly from the front panel, and to simulate the charging characteristics of a battery.

Accurately Characterize Your Device Under Test (DUT's) Power Profile with Advanced Measurements

The DP5800 provides simultaneous voltage and current measurement capabilities. You can measure using two main modes: averaged or digitized. In average mode, the DP5800 delivers accurate voltage and current measurements. The digitizing capability allows you to select the type of measurement returned and fine-tune the measurement quality.

Avoid Damage to Your DUT

When testing costly DUTs, integrating power protection measures into the test system is critical. Instruments with built-in or integrated protection respond faster than software-based safeguards,

detecting and addressing error conditions quickly to reduce the risk of serious damage. The DP5800 provides built-in overvoltage, overcurrent, overpower, and undervoltage protection to help safeguard your DUT.

Generate Voltage and Current Transients

DUTs operating in rugged environments, such as automotive electronics and avionics, can often experience transient behavior from the power source, such as voltage dropouts or surges. To ensure your DUT stands up to these real-world transients, you must simulate worst-case power transient conditions during testing. The DP5800 provides three functions for simulating either voltage or current transients for testing:

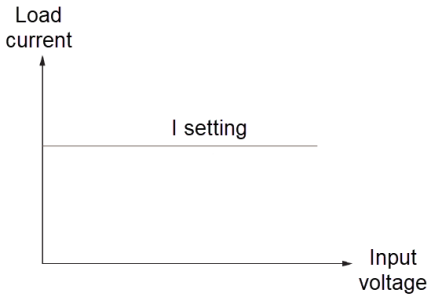
- **Step**: A one-time event steps the output voltage or current up or down in response to a triggered event.
- **Constant dwell arbitrary waveforms**: An arbitrary waveform generator (ARB) allows you to generate complex user-defined voltage or current waveforms of up to 65,535 data points. One dwell setting applies for the entire ARB, from 1 ms to 3,600 s.
- **List**: A list can consist of up to 200 steps, each with a unique dwell time, which specifies how many seconds the list will remain at that step before advancing. Lists can also be trigger-paced, advancing one step for each trigger received.

Properly Powering Your DUT On and Off

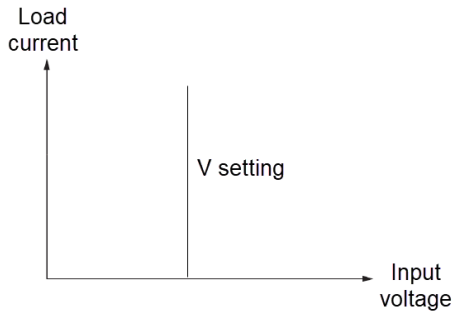
If you work with DUTs with multiple power supply inputs, you often need to sequence on or off for each power supply at precise, repeatable times to prevent current surges and latch-up conditions. In addition, you may need to control the ramp rate of each supply at turn-on or turn-off. These requirements add significant hardware and software complexity to an automated test equipment system. The DP5800 simplifies this process with built-in sequencing across multiple supplies, providing a clean, low-complexity way to properly power on or off your DUT during testing.

Multiple Operating Modes

The DP5800 Series provides voltage priority mode (CV), current priority mode (CC) under source mode:



Current Priority (CC mode)



Voltage Priority (CV mode)

Add Power Flexibility to Your Test System by Paralleling Multiple Power Supplies

Paralleling multiple power supplies together is a great way to add power flexibility to your test system. Conventional power supplies often cannot maintain the desired Constant Voltage (CV) or Constant Current (CC) mode when parallel. For instance, when trying to operate in CV mode with two parallel supplies, one will typically source the bulk of the current and operate in CC mode, and the other supply will source only a fraction of the current and operate in CV mode. This imbalance can significantly degrade certain power supply performance specifications, such as transient response. DP5800 eliminates this issue with a built-in parallel capability to ensure that each supply equally shares the load current, so they all remain in the desired mode — CV or CC.

The DP5800 also supports primary / secondary mode, which enables you to configure and program the paralleled units as a single supply of up to 192 kW of total power; there is no need to program each supply individually. The DP5800 Series regenerative power system gives you the flexibility to easily parallel up to 16 units for greater output current. Parallel connection of mixed models with identical voltage ratings is only applicable for 10.2kW and 12kW models with the same firmware version. All other models require the same models of the same firmware to be paralleled.



Figure 3. Parallel operation for more power

Simplify System Connection

The DP5800 Series power supplies come standard with Ethernet / LAN, USB 2.0, CAN IO interfaces, and optional GPIB, analog, and RS-232 IO interfaces, giving you the flexibility to use your I/O interface of choice today and safeguard your test setup for the future. The DP5800 is compliant with 1.5 LXI Device Specification 2016 and includes a built-in web interface. This enables you to control the DP5800 remotely using a web browser via a LAN connection.

AC Input

The DP5800 Series features a three-phase AC input inverter that enables efficient power conversion from the AC mains to the DC output terminals.

DP5810A, DP5811A, DP5812A, DP5813A, DP5814A, DP5815A, and DP5816A models require a nominal three-phase AC input range of 380 to 520 VAC, 50/60 Hz to achieve maximum rated current and power.

The 10 kW and 12 kW models can be operated from 200 VAC to 208 VAC AC mains input; however, the current and power ratings are reduced by approximately 35%.

The DP5800 Series uses a three-phase AC input with AC mains connections: L1, L2, L3, and PE.

Digital Control Port

The rear panel of every DP5800 power supply features a digital control port containing seven user configurable I/O pins that provide access to various control functions. Each pin is configurable. Table 1 describes the possible pin configuration for the digital port functions.

Pin Function	Available Configuration Pins
Digital I/O and digital in	Pins 1 through 7
Protection status	Pins 2
External trigger in / out	Pin 4
Inhibit in	Pins 5
Output couple	Pins 6 and 7
Common (connected to ground)	Pins 8

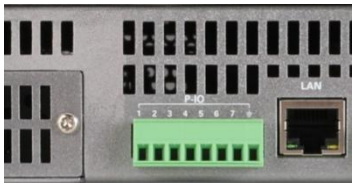


Figure 4. Digital control port on the rear panel

Rack-Mount Kits

You can easily rack mount the DP5800 Series using the following kits:

- RP5905C for 2U models

PW9252A PathWave Advanced Power Control and Analysis Application

The PW9252A PathWave Advanced Power Control and Analysis application provides fast and easy access to the sourcing and measurement functionality of your DP5800 Series power supply without any programming. PW9252A allows flexibility on the number of instrument connections by just purchasing the number of licenses based on the number of connecting instruments. They are flexible tools for any application and allow you to control any DP5800 Series model via LAN, GPIB, and USB interface. The software can also control other Keysight power supplies, including the popular N6700 modules, the N6705 DC power analyzer, N7900 advanced power supplies, and the RP7900 regenerative power systems.

PW9252A enables you to do the following:

- Control and analyze up to 10 DP5800 Series systems simultaneously.
- Create complex waveforms effortlessly, enter formulas, choose from built-in patterns, or import your data, for precise DUT stimulation or load simulation.
- Enhance productivity with intuitive PC-style controls and a large, easy-to-read display.
- Log measurement data directly to your PC for fast storage, review, and reporting.
- Perform detailed CCDF statistical analysis to gain deeper insights into power-consumption patterns.
- Integrate seamlessly into your existing programming environment using the API for complete automation flexibility.



Figure 5. PW9252A interface with 4 channels connected

Specifications

Unless otherwise noted, specifications are warranted over the ambient temperature range of 0 to 40 °C after a 30-minute warm-up period. Specifications apply at the output terminals, with the sense terminals connected to the output (local sensing) terminals.

Refer to the Keysight DP5800 Series documentation for the setup conditions for all performance specifications.

Supplemental characteristics are not warranted but are descriptions of performance determined by design or type testing. All supplemental characteristics are typical unless otherwise noted.

For more detailed specifications, refer to the DP5800 Series user manual.

	DP5810A	DP5811A	DP5812A	DP5813A
DC Ratings				
Voltage	0 to 10 V	0 to 32 V	0 to 80 V	0 to 300 V
Current	0 to ±1020 A	0 to ±480 A	0 to ±240 A	0 to ±120 A
Power	0 to ±10.2 kW	0 to ±12 kW	0 to ±12 kW	0 to ±12 kW
Output Ripple and Noise [3]				
CV peak-to-peak [1]	≤ 160 mVp-p	≤ 80 mVp-p	≤ 200 mVp-p	≤ 300 mVp-p
CV rms[2]	≤ 10 mVrms	≤ 30 mVrms	≤ 80 mVrms	≤ 60 mVrms
Load Effect (Load Regulation) [3]				
Voltage	4 mV	12.8 mV	16 mV	60 mV
Current	1020 mA	480 mA	240 mA	120 mA
Programming Accuracy [3]				
Voltage	0.08% + 8 mV	0.05% + 22 mV	0.03% + 24 mV	0.03% + 90 mV
Current	0.3% + 3.06A	0.1% + 1.2 A	0.1% + 240 mA	0.1% + 180 mA
Power	0.5% + 51W	0.5% + 60 W	0.5% + 60 W	0.5% + 60 W
Measurement Accuracy [3]				
Voltage	0.08% + 8 mV	0.05% + 22 mV	0.03% + 24 mV	0.03% + 90 mV
Current	0.3% + 3.06A	0.1% + 1.2 A	0.1% + 380 mA	0.1% + 180 mA
Power	0.5% + 51W	0.5% + 60 W	0.5% + 60 W	0.5% + 60 W
Load Transient Recovery Time [3,4]				
Recovery time	≤ 100 ms	≤ 1 ms	≤ 1 ms	≤ 1 ms
Settling band	0.1 V	0.32 V	0.8 V	3 V

1. From 20 Hz to 20 MHz (-3 dB bandwidth) with resistive load, terminals ungrounded, or terminal grounded.
2. From 20 Hz to 10 MHz (-3 dB bandwidth) with resistive load up to 400 V, terminals ungrounded, or terminal grounded.
3. Percent of value + offset; at 23 °C ± 5 °C after a 30-minute warm-up; measurement NPLC=1; valid for 1 year.
4. Time to recover within the settling band following a step change from 25% to 90% of full load.

	DP5814A	DP5815A	DP5816A
DC Ratings			
Voltage	0 to 500 V	0 to 800 V	0 to 1500 V
Current	0 to ±72 A	0 to ±48 A	0 to ±24 A
Power	0 to ±12 kW	0 to ±12 kW	0 to ±12 kW
Output Ripple And Noise [3]			
CV peak-to-peak [1]	≤ 500 mVp-p	≤ 1,000 mVp-p	≤ 1500 mVp-p
CV rms[2]	≤ 100 mVrms	≤ 160 mVrms	≤ 300 mVrms
Load Effect (Load Regulation) [3]			
Voltage	100 mV	160 mV	300 mV
Current	72 mA	64 mA	24 mA
Programming Accuracy [3]			
Voltage	0.03% + 150 mV	0.03% + 240 mV	0.03% + 900 mV
Current	0.1% + 72 mA	0.1% + 48 mA	0.2% + 48 mA
Power	0.5% + 60 W	0.5% + 60 W	0.5% + 60 W
Measurement Accuracy [3]			
Voltage	0.03% + 150 mV	0.03% + 240 mV	0.03% + 900 mV
Current	0.1% + 72 mA	0.1% + 48 mA	0.2% + 48 mA
Power	0.5% + 60 W	0.5% + 60 W	0.5% + 60 W
Load Transient Recovery Time [3,4]			
Recovery time	≤ 1 ms	≤ 1 ms	≤ 1 ms
Settling band	5 V	8 V	15 V

1. From 20 Hz to 20 MHz (-3 dB bandwidth) with resistive load, terminals ungrounded, or terminal grounded.
2. From 20 Hz to 10 MHz (-3 dB bandwidth) with resistive load up to 400 V, terminals ungrounded, or terminal grounded.
3. Percent of value + offset; at 23 °C ± 5 °C after a 30-minute warm-up; measurement NPLC=1; valid for 1 year.
4. Time to recover within the settling band following a step change from 25% to 90% of full load.

Supplemental Characteristics

Supplemental characteristics are not warranted but are descriptions of performance determined by design or type testing. All supplemental characteristics are typical unless otherwise noted.

	DP5810A	DP5811A	DP5812A	DP5813A
Voltage Programming				
Range	0 to 10 V	0 to 32 V	0 to 80 V	0 to 300 V
Resolution	1 mV	1 mV	1 mV	10 mV
Current Programming				
Range	-720 to 1020 A	-480 to 480 A	–240 to 240 A	-120 to 120 A
Resolution	100 mA	10 mA	10 mA	1 mA
Resistance Programming				
Series resistance range	0 to 0.005 Ω	0 to 0.02 Ω	0 to 0.15 Ω	0 to 0.2 Ω
Load resistance range	0.0015 to 5 Ω	0.004 to 200 Ω	0.005 to 400 Ω	0.1 to 1500 Ω
Resolution	1 mΩ	1 mΩ	1 mΩ	10 mΩ
Accuracy	1.5 mΩ	4 mΩ	3 mΩ	100 mΩ
Voltage Programming Speed, No Load				
Rise / fall time 10% to 90% of step	50 ms / 100 ms	30 ms / 60 ms	15 ms / 30ms	30 ms / 30 ms
Voltage Programming Speed, Full Load				
Rise / fall time 10% to 90% of step	100 ms / 50 ms	100 ms / 30 ms	30 ms / 15 ms	60 ms / 15 ms
Source Effect (Line Regulation)				
Voltage	≤ 2 mV	≤ 6.4 mV	≤ 16 mV	≤ 60 mV
Current	≤ 432 mA	≤ 288 mA	≤ 144 mA	≤ 72 mA
Protection Capability				
Overvoltage	10.5 V	33 V	82 V	303 V
Overcurrent	-727.2 A / +1030.2 A	±484.8 A	±252 A	±121.2 A
Overpower	-7,344 W / +10,710 W	±12,240 W	±12,240 W	±12,240 W

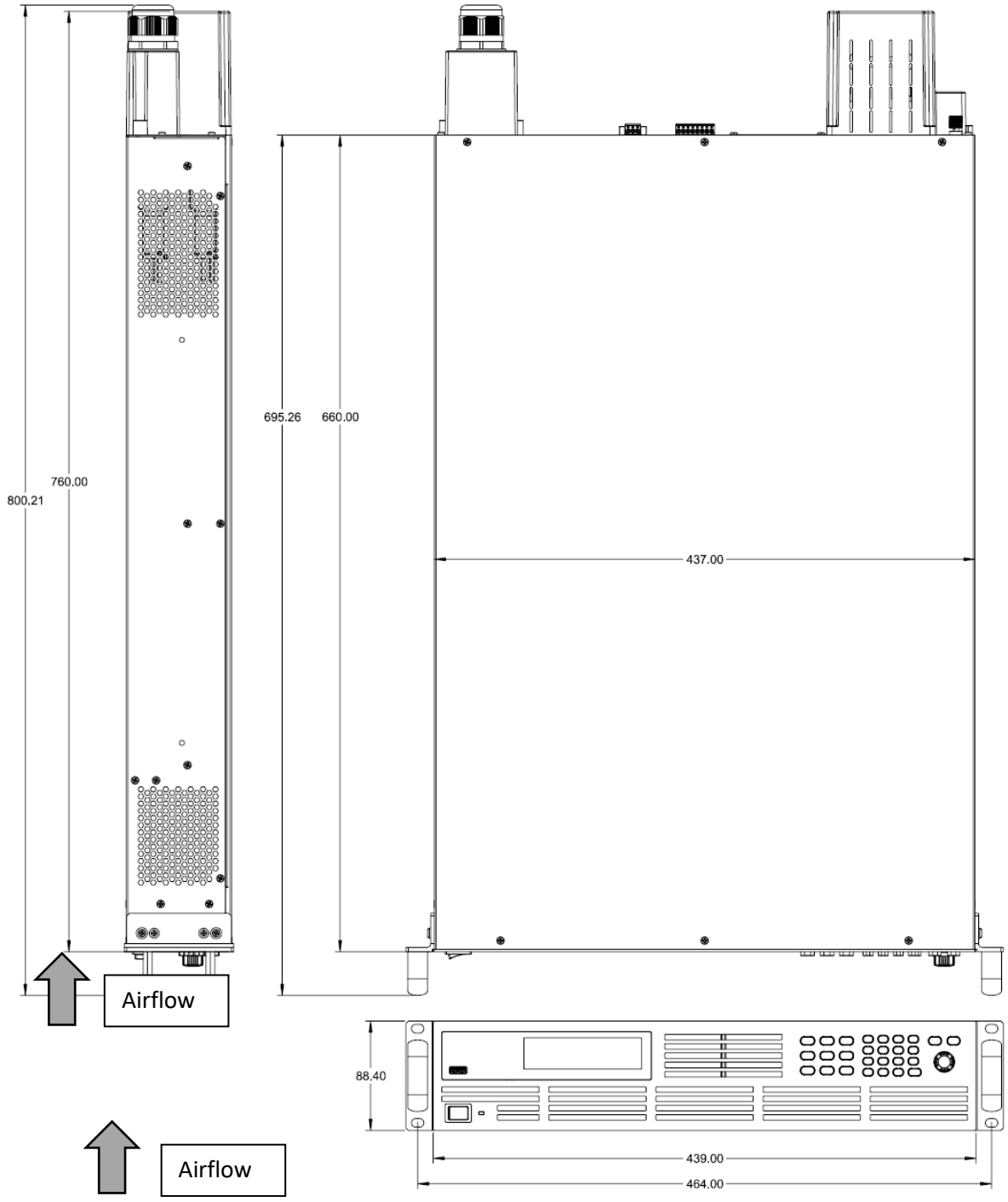
	DP5814A	DP5815A	DP5816A
Voltage Programming			
Range	0 to 500 V	0 to 800 V	0 to 1500 V
Resolution	10 mV	10 mV	10 mV
Current Programming			
Range	−72 to 72 A	−48 to 48 A	-24 to 24 A
Resolution	10 mA	10 mA	1 mA
Resistance Programming			
Series resistance range	0 to 1 Ω	0 to 1 Ω	0 to 0.5 Ω
Load resistance range	0.05 to 2,500 Ω	0.08 to 3,750 Ω	0.25 to 3750 Ω
Resolution	10 mΩ	10 mΩ	10 mΩ
Accuracy	10 mΩ	10 mΩ	250 mΩ
Voltage Programming Speed, No Load			
Rise / fall time 10% to 90% of step	30 ms / 30ms	30 ms / 30ms	30 ms / 30 ms
Voltage Programming Speed, Full Load			
Rise / fall time 10% to 90% of step	60 ms / 30 ms	60 ms / 30 ms	60 ms / 15 ms
Source Effect (Line Regulation)			
Voltage	≤ 100 mV	≤ 160 mV	≤ 300 mV
Current	≤ 57.6 mA	≤ 28.8 mA	≤ 14.4 mA
Protection Capability			
Overvoltage	505 V	808 V	1515 V
Overcurrent	±75 A	±50.4 A	±24.24 A
Overpower	±12,240 W	±12,240 W	±12,240 W

Common Characteristics

Common Characteristic	All Models
Command processing time	≤ 0.1 ms from receipt of command to start of output change. Applies to simple setting commands over the GPIB interface
Parallel capability	Up to 16 units can be connected in primary / secondary mode, except DP5810A models can only connect up to 8 units.
Computer Interfaces	
LXI	1.5 LXI Device Specification 2016
LAN	10 Mb, 100 Mb, 1 Gb LAN
USB	USB 2.0 (USB-TMC488 protocol)
GPIB	SCPI - 1993, IEEE 488.2 compliant interface
CAN	CAN 2.0A and CAN 2.0B compatible (CANopen protocol)
Analog	0 to 10 V full scale
Web Server	Support remote control, transfer screen, screenshot, upgrade program, and so on
Constant Dwell ARBs	
Number of points	Up to 65,535
Dwell range	One dwell setting applies for the entire ARB, from 1 ms to 3,600 s
Regulatory Compliance	
EMC	Complies with European EMC Directive for test and measurement products
	Complies with Australian standard and carries C-Tick mark
	This ISM device complies with Canadian ICES-001
	Cet appareil ISM est conforme à la norme NMB-001 du Canada
Safety	Complies with European Low Voltage Directive and carries the CE mark
	Conforms to US and Canadian safety regulations
	Declarations of Conformity for this product may be downloaded from the Web. Go to http://www.keysight.com/go/conformity and click on "Declarations of Conformity"
Output Terminal Isolation	
For 10 VDC model – DP5810A	No output terminal may be more than ± 60 VDC from any other terminal or chassis ground
For 32 VDC model – DP5811A	No output terminal may be more than ± 60 VDC from any other terminal or chassis ground
For 80 VDC model – DP5812A	No output terminal may be more than ± 300 VDC from any other terminal or chassis ground
For 300 VDC model – DP5813A	No output terminal may be more than ± 300 VDC from any other terminal or chassis ground
For 500 VDC model – DP5814A	No output terminal may be more than ± 800 VDC from any other terminal or chassis ground
For 800 VDC model – DP5815A	No output terminal may be more than ± 1000 VDC from any other terminal or chassis ground
For 1500 VDC model – DP5816A	No output terminal may be more than ± 1500 VDC from any other terminal or chassis ground
AC Input	
Connections	L1, L2, L3, PE
Nominal AC input range and frequency	3-phase; 380 – 520 VAC, 50 / 60 Hz NOTE: 10 kW and 12 kW models can be operated at 200 VAC – 208 VAC AC mains input, with the condition that the current and power ratings are reduced by approximately 35%.
Input VA	Max. Apparent Power: DP5810A: 11 kVa DP5811A, DP5812A, DP5813A, DP5814A, DP5815A, DP5816A: 13 kVa
	Max. AC Current: 25 A

	Max Efficiency: DP5810A: 89%, DP5811A: 90%, DP5812A: 92%, DP5813A: 93%, DP5814A: 93%, DP5815A: 93%, DP5816A: 93%
Power factor	0.99 at nominal input and rated power
Environmental	
Operating environment	Indoor use, installation category II (for AC Input), pollution degree 2
Operating temperature range	0 – 40 °C
Programming temperature coefficient	Voltage: ≤ 30 ppm / °C Current: ≤ 50 ppm / °C
Measurement temperature coefficient	Voltage: ≤ 30 ppm / °C Current: ≤ 50 ppm / °C
Relative humidity	20% to 80% relative humidity (non-condensing)
Altitude	Up to 2,000 meters
Storage temperature	-10 °C to 70 °C
Acoustic statement (European Machinery Directive)	Acoustic noise emission LpA ≤ 78.5 dB at Operating position; LpA ≤ 75.1 dB at Bystander position; LpA ≤ 75.4 dB at Worst-case fan speed Normal operating mode per ISO 7779
ESD immunity	Up to ±8 kV contact discharge Up to ±12 kV air-gap discharge
Digital Port	
Max voltage rating	5V
Typical Weight	
	66.2 lbs. (30 kg)
Dimensions	
	2U, full rack width (see Outline Diagrams for details)

Outline Diagrams



Ordering Information

Available Models

DP5800 Series DC Power System Models

DP5810A	DC power supply	10 V, ±1020 A, 10.2 kW, 380/480 VAC
DP5811A	DC power supply	32 V, ±480 A, 12 kW, 380/480 VAC
DP5812A	DC power supply	80 V, ±240 A, 12 kW, 380/480 VAC
DP5813A	DC power supply	300 V, ±120 A, 12 kW, 380/480 VAC
DP5814A	DC power supply	500 V, ±72 A, 12 kW, 380/480 VAC
DP5815A	DC power supply	800 V, ±48 A, 12 kW, 380/480 VAC
DP5816A	DC power supply	1500 V, ±24 A, 12 kW, 380/480 VAC

Line Cords and Terminations (Plugs)

Due to the number of different line cords and terminations around the world, the DP5800 power supplies do not come with line cords or terminations. Users will need to supply their own, depending on the local laws and codes of the country / region where the power supply will be used.

Accessories

Accessories

PW9252A	PathWave Advanced Power Control and Analysis application
RP5901C	GPIB interface board for EL4900 Series DC loads and DP5800 Series supplies
RP5902C	Analog / RS-232 interface board for EL4900 Series DC loads and DP5800 Series supplies
RP5903C	Parallel kit — Fiber optics cable and transmitter module
RP5905C	Rack-mount kit 2U for EL4900 Series DC loads and RP5900 and DP5800 Series supplies

Keysight Support Services

Accelerate your learning curve, enhance your test uptime, and confidently guarantee your instrument accuracy with Keysight Support Services. Keysight Services are here to support your test needs with expert technical support, instrument repair and calibration, training, alternative acquisition program options, and more.

A KeysightCare agreement provides dedicated, proactive support through a single point of contact for an extensive group of instruments, software, and solutions to ensure optimal uptime, with fast response times and resolution. Explore the services that are right for you.

Keysight Services

Offering	Benefits
KeysightCare 	KeysightCare provides elevated support for Keysight instruments and software, with access to technical support experts who respond within a specified time and ensure committed repair and calibration turnaround times (TAT). KeysightCare offers multiple service agreement tiers, including KeysightCare Assured, Enhanced, and Application Software Support. See the KeysightCare data sheet for details.
KeysightCare Assured	KeysightCare Assured provides a commitment to respond to your engineer's technical needs quickly. When unexpected repairs are necessary, you can count on a committed repair service turnaround time to get you back up and running.
KeysightCare Enhanced	KeysightCare Enhanced includes all the benefits of KeysightCare Assured plus Keysight's accurate and reliable Calibration Services, accelerated and committed TAT, and technical response.
Keysight Support Portal and Knowledge Center	All KeysightCare tiers include access to the Keysight Support Portal, where you can manage support and service resources related to your assets, such as service requests and status, or browse the Knowledge Center.
Education Services	Build confidence and gain new skills to make accurate measurements, with flexible Education Services developed by Keysight experts, including Start-up Assistance.
Alternative Acquisition Options	
KeysightAccess	Reduce budget challenges with a lease-based subscription service that offers low monthly payments, enabling you to get the instruments, software, and technical support you want for your test needs.

Recommended Services

Maximize your instrument uptime and confidently make accurate measurements by securing technical support, repair, and calibration services with committed response and turnaround times. High-performance instruments include 1 year of KeysightCare Assured. Obtain multi-year KeysightCare upfront to eliminate the need for lengthy and tedious paperwork and yearly requests for maintenance budget. Plus, you benefit from secured service for 2, 3, or 5 years.

Service	Function
KeysightCare Enhanced*	**Includes Tech Support, Warranty, and Calibration**
R-55B-001-1	KeysightCare Enhanced – Upgrade 1 year
R-55B-001-2	KeysightCare Enhanced – Extend to 2 years
R-55B-001-3	KeysightCare Enhanced – Extend to 3 years (Recommended)
R-55B-001-5	KeysightCare Enhanced – Extend to 5 years (Recommended)
KeysightCare Assured	**Includes Tech Support and Warranty**
R-55A-001-2	KeysightCare Assured – Extend to 2 years
R-55A-001-3	KeysightCare Assured – Extend to 3 years
R-55A-001-5	KeysightCare Assured – Extend to 5 years
Start-Up Assistance	
PS-S40-01	Included – instrument fundamentals and operations starter
PS-S40-04	Recommended – instrument fundamentals and operations starter
PS-S40-02	Optional, technology and measurement science standard learning

*Available in select countries. For details, please see the datasheet. R-55B-001-2/3/5 must be ordered with R-55B-001-1.

Definitions

Specification (spec)

The warranted performance of a calibrated instrument that has been stored for a minimum of two hours within the operating temperature range of 0 to 55 ºC and after a one-hour warm-up period. All specifications account for the effects of measurement and calibration-source uncertainties and were created in compliance with ISO-17025 methods. Data published in this document are specifications (spec) only where specifically indicated.

Typical (typ)

The characteristic performance that 80% or more of manufactured instruments will meet. This data is not warranted, does not include measurement or calibration-source uncertainty, and is valid only at room temperature (approximately 23 ºC).

Nominal (nom)

The mean or average characteristic performance, or the value of an attribute that is determined by design, such as a connector type, physical dimension, or operating speed. This data is not warranted and is measured at room temperature (approximately 23 ºC).

Measured (meas)

An attribute measured during product development for the purpose of communicating expected performance. This data is not warranted and is measured at room temperature (approximately 23 ºC)

TCAL

The temperature at which the instrument was calibrated.

For More Information

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